

# APPENDIX G

## GRAZING ALLOTMENTS/MANAGEMENT UNITS AND PASTURE DESIGNATIONS WITHIN THE GRAZING/RESEARCH PROGRAM

<u>GRAZING ALLOTMENT</u>	<u>PASTURE NAME</u>	<u>NORMAL TREATMENT</u>	<u>1993-1994 TREATMENT</u>	<u>ACRES BLM</u>	<u>ACRES DFG</u>
CARRIZO RANCH	ABBOTT CANYON	ANNUAL	ANNUAL	3380	0
CARRIZO RANCH	GOAT SPRING	ANNUAL	ANNUAL	960	0
CARRIZO RANCH	HOLDING	ANNUAL	ANNUAL	360	0
GOODWIN	DILLARD	ANNUAL	NON-GRAZED	1050	0
GOODWIN	CALIFORNIA VALLEY	ANNUAL	ANNUAL	624	0
GOODWIN	NORTH GOODWIN	ANNUAL	ANNUAL	1630	0
GOODWIN	SOUTH GOODWIN	ANNUAL	ANNUAL	680	0
GOODWIN	ELK CANYON	NON-GRAZED	NON-GRAZED	1200	0
GOODWIN	WINDMILL	NON-GRAZED	NON-GRAZED	0	480
KCL	BUCK	NON-GRAZED	NON-GRAZED	320	0
KCL	CENTER WELL	ANNUAL	ANNUAL	6600	0
KCL	DEAD BRUSH	ROTATION	LATE	2040	0
KCL	EAST COUSINS	ROTATION	LATE	2400	0
KCL	ELKHORN	NON-GRAZED	NON-GRAZED	400	0
KCL	KCL HOUSE	ROTATION	EARLY	1630	0
KCL	OLD ADOBE	ROTATION	LATE	540	0
KCL	OLD CORRAL EAST	NON-GRAZED	NON-GRAZED	1100	0
KCL	OLD CORRAL NORTH	ROTATION	EARLY	1470	0
KCL	SAND CANYON	ROTATION	REST	3740	0
KCL	SHIPPING	HORSES	HORSES	640	0
KCL	SWAIN	NON-GRAZED	NON-GRAZED	2660	0
KCL	WEST PANORAMA	ROTATION	EARLY	1120	0
KCL	WEST WELL	ROTATION	REST	4680	0
PAINTED ROCK	COYOTE	ROTATION	LATE	2130	0
PAINTED ROCK	ED. CENTER	NON-GRAZED	NON-GRAZED	40	40
PAINTED ROCK	PAINTED ROCK	NON-GRAZED	NON-GRAZED	1480	0
PAINTED ROCK	RANCH	ROTATION	EARLY	2890	0
PAINTED ROCK	SELBY	ROTATION	REST	1910	0
PANORAMA	PANORAMA ECO RES	NON-GRAZED	NON-GRAZED	0	2800
PHELAN	PHELAN	ANNUAL	PRIVATE	4640	0
PHELAN	NORTH CAL POLY	NON-GRAZED	NON-GRAZED	560	0
SAUCITO	BROMLEY	ROTATION	REST	1440	0
SAUCITO	EAST AMERICAN	NON-GRAZED	NON-GRAZED	0	640
SAUCITO	HILL	ROTATION	LATE	1320	0
SAUCITO	NORTH AMERICAN	NON-GRAZED	NON-GRAZED	0	1040
SAUCITO	NORTH SAUCITO	NON-GRAZED	NON-GRAZED	0	160
SAUCITO	SHEEP CAMP	ROTATION	EARLY	1100	0
SAUCITO	SOUTH AMERICAN	NON-GRAZED	NON-GRAZED	0	960
SAUCITO	WEST AMERICAN	NON-GRAZED	NON-GRAZED	0	2160
SODA LAKE	SODA LAKE	NON-GRAZED	NON-GRAZED	12880	160
TEMBLOR-CALIENTE	BIG TANK	ANNUAL	ANNUAL	320	0
TEMBLOR-CALIENTE	CALF SHED	ANNUAL	ANNUAL	2360	0
TEMBLOR-CALIENTE	COCHORA HORSE	HORSES	HORSES	340	0
TEMBLOR-CALIENTE	EAST COCHORA	ANNUAL	ANNUAL	13230	0
TEMBLOR-CALIENTE	ELKHORN ECO RES	NON-GRAZED	NON-GRAZED	0	160
TEMBLOR-CALIENTE	FAULT	NON-GRAZED	NON-GRAZED	5740	0
TEMBLOR-CALIENTE	MU HORSE	HORSES	HORSES	140	0
TEMBLOR-CALIENTE	HANLINE	ANNUAL	ANNUAL	160	0
TEMBLOR-CALIENTE	HOSTETTER	ANNUAL	ANNUAL	1080	0
TEMBLOR-CALIENTE	HOUSE	HORSES	HORSES	280	0
TEMBLOR-CALIENTE	JOBE BACK	ANNUAL	ANNUAL	400	0
TEMBLOR-CALIENTE	PADRONE	ANNUAL	ANNUAL	5200	0
TEMBLOR-CALIENTE	RED TANK	ANNUAL	ANNUAL	6120	0
TEMBLOR-CALIENTE	QUAIL SPRING	ANNUAL	ANNUAL	11180	0
TEMBLOR-CALIENTE	SCHOOL HOUSE	ANNUAL	ANNUAL	2040	0
TEMBLOR-CALIENTE	VAN MATRE	NON-GRAZED	NON-GRAZED	1940	0
TEMBLOR-CALIENTE	WEST COCHORA	ANNUAL+	ANNUAL+	11040	0
TEMBLOR-CALIENTE	WIDOW WOMAN	NON-GRAZED	NON-GRAZED	160	0
WASHBURN	AIRSTRIP	ROTATION	REST	770	0

WASHBURN	BACK CANYON	ANNUAL	ANNUAL	1080	0
WASHBURN	EAST PAINTED ROCK	ROTATION	LATE	800	0
WASHBURN	WASHBURN HORSE	HORSES	HORSES	210	0
WASHBURN	MIDDLE	NON-GRAZED	NON-GRAZED	370	0
WASHBURN	SILVER GATE	ROTATION	LATE	1160	0
WASHBURN	SOUTH COUSINS	ROTATION	REST	1120	0
WASHBURN	SULFUR SPRING	ROTATION	EARLY	1030	0
WASHBURN	TRIPOD	ROTATION	EARLY	790	0
WASHBURN	WEST PAINTED ROCK	ROTATION	EARLY	<u>860</u>	<u>0</u>
TOTALS.....				139,534	8600

NOTE:..Acreage figures are estimates within allotments only and may not correspond to acreage figures within the rest of the plan  
+ (West Cochora grazing season extends to May 31).

GRAZING ALLOTMENTS OUTSIDE THE GRAZING/RESEARCH PROGRAM,  
BUT PARTIALLY WITHIN THE CPNA BOUNDARY

		CPNA. .. NO ..	CPNA..NON				
GRAZING. . . .	PASTURE. . . .	..NORMAL.. . . .	ACRES CPNA .ACRES	ACRES	ACRES	CPNA	CPNA
ALLOTMENT. . . .	NAME . . . .	SEASON. . . .	BLM	BLM	TNC	DFG	DFG
CHICO MARTINEZ PORTION IN CPNA . . . .	AS FORAGE AVAILABLE . . . .	80. . . .	0	0			
REMAINDER.. . . .	DEC-MAY and AS FORAGE AVAILABLE . . . .	8273 . . . .	0			0	
CHIMINEAS RANCH PORTION IN CPNA.. . .	DEC-MAY. . . .	1520. . . .	0			0	
REMAINDER.. . . .	DEC-MAY. . . .	6625 . . . .	0				0
FRAZER VALLEY. . . .	PORTION IN CPNA.. . .	DEC-MAY and AS FORAGE AVAILABLE 347. . . .	0			0	
REMAINDER.. . . .	DEC-MAY. . . .	1712 . . . .	0			0	
MARICOPA RANGE PORTION IN CPNA . . . .	DEC-MAY . . . .	760. . . .	0			0	
REMAINDER.. . . .	DEC-MAY. . . .	4604 . . . .	0				0
MCKITTRICK SMT MCKITTRICK SMT (CPNA) .	DEC-MAY . . . .	160. . . .	0				0
NORTH TEMBLOR. . . .	PORTION IN CPNA.. . .	DEC-MAY. . . .	7090. . . .	0		100	
REMAINDER.. . . .	DEC-MAY and AS FORAGE AVAILABLE . . . .	23959 . . . .	0			100	
SELBY RANCH. . . .	NORTH SELBY (CPNA).. . .	DEC-MARCH.. . .	4804. . . .	0		0	
SOUTH SELBY . . . .	DEC-MAY . . . .	20381 . . . .	0			440	
SULPHUR CANYON SULPHUR CANYON (CPNA) .	DEC-MAY . . . .	16065. . . .	0			0	
TOTALS.....		30826	65556	0	100	540	

NOTE: Acreage figures are estimates within allotments only and may not correspond to acreage within the rest of the plan.

## **The Comparative Yield Method for Measuring Residual Annual Dry Matter as Modified for Use in the Carrizo Plain Natural Area**

This part of the grazing monitoring plan outlines the basic methods used to determine if the range conditions have met or exceeded those criteria outlined in the U.S. Fish and Wildlife Service consultation for grazing in the CPNA (the opinion). The methods are focused on determining the amount of annual vegetation produced on a "middle" production site. The number of pounds per acre (dry weight of annuals of all species combined) on middle production sites (called Key Areas) will be compared to the minimum number of pounds per acre required by the interim consultation. Other factors may be included into the criteria such as number of inches of new green annuals.

This monitoring should add consistency for grazing operators, more information on pre and post grazing range conditions, and more confidence for researchers seeking to answer questions about life history responses of certain T&E species of plants and animals to the presence of grazing.

One of the basic assumptions is that grazing at the prescription set forth in the opinion will enhance all resources not just T&E species. The methods described in this section are not intended to answer this complex question. It is the objective of the methodology to assure that the prescription is being uniformly applied to public land. This is a crucial step in getting the first question answered.

A very important and as yet untested assumption inherent in these methods involves the use of middle production areas or Key Areas. We assume that if the Key Area(s) in a region are managed above or at the prescription levels that all the region/allotment/pasture will be vegetated with a quantity of annuals consistent with what is required on all growth sites for maintaining an adequate seed bank and proper microenvironment in perpetuity.

Mulch level determination is completed in four steps:

1. ...determining Key Area(s)
2. ...sampling annuals at Key Area(s)
3. ...estimating pounds of dried annuals per acre and average height of green annuals
4. ...reporting, documenting, and filing information

Each step will be discussed under a separate heading below.

### **Step 1 - determine Key Area(s)**

Most of the pastures do not have Key Areas previously determined so they will have to be established, however Key Areas may change each year. The Key Area should be at least 100 by 100 feet in size where annual vegetation predominates and its productivity is about in the middle for the pasture at the time you are visiting it. The Key Area will normally be found on a saddle or knoll with flat or gently sloping topography. Maps of the allotment with pasture boundaries should be available. Generally, driving around most of the pasture will provide a good idea of the variation in plant production. It can take several attempts at locating a "good" Key Area because what looks "middle" from the road often turns out not to be when you see it close up. You are not trying to locate a representative production area but one that is approximately in the middle of what is found in the pasture. Some pastures are so variable that more than one Key Area is needed to "capture" the variability of the middle production sites for the pasture in making the estimates of pounds per acre.

Some characteristics to look for are:

1. ...Similarity to other middle areas in the allotment - if the allotment is uniform, look for a uniform Key Area, if it is spotty, then look for a spotty Key Area. If possible find a Key Area with a relatively representative assortment of species.
2. ...An undisturbed natural site - not a past or current concentration area near fences, a water source, salt blocks or not previously scrapped, recently burned, or containing unusual concentrations of organic wastes.

Avoid concentration areas, heavily vegetated north slopes, sparsely vegetated south slopes, drainage bottoms, ecotones, disturbed sites, uncharacteristic monotypes.

## **Step 2 - sampling and documenting Key Areas**

The purpose of the Key Area sampling is to estimate the number of pounds per acre of dry annual vegetation and to estimate the average height of the vegetation (this last part has been informal in 1992) within the Key Area. The estimate of the pounds per acre should be a fair estimate of similar areas within the pasture but does not represent the average for the entire pasture.

### Locating the reference plots

1. ...Walk over the Key Area and locate the highest and lowest production sites. Place a hoop over each to serve as a reference and clip plot later. Look at the volume (plant density and height) when searching for these sites. When running the transect, you can not have ranks less than or more than these two plots so make sure that such an occurrence is unlikely by taking time to select the best plots.
2. ...Locate a middle production area. This should be between the two extremes above but not necessarily representative of most of the Key Area. What we are interested in is a reference point between high and low that is visually in the middle in density and height. The ranked samples will take care of what is representative of the Key Area.

### Running the transect

1. ...Determine a random starting point and direction, thereafter the transect is run in parallel lines alternating in direction (Fig 2). To find an unbiased starting point follow these confusing directions. You need to have a digital watch and compass to do this.
  - a) ..... Look at the watch and remember what the seconds are (e.g., 25)
  - b) ..... Walk out toward the Key Area center
  - c) ..... Look at the seconds again (e.g., 15)
  - d) ..... Use the first number for the direction to go to the starting plot and the direction to go once you get started. Multiply the number of seconds times 6 to get the direction to go (e.g.,  $25 * 6 = 150$ ).
  - e) ..... Take 15 steps in the direction of 150 degrees. This is the first plot. The second plot will be 5 steps farther in the same direction.
2. ...When running the transect you should look toward the horizon so that you do not unconsciously take smaller or larger steps or veer toward or away from a certain area.

3. ...Place the hoop at the toe of your foot. Rank the vegetation within the hoop. Think of the hoop as a straight-walled cylinder. What is the rank of the vegetation in the air space above the hoop, not what is necessarily growing and spilling out of the hoop. Refer to the reference hoops if necessary while ranking.
4. ...After ranking and recording, take 5 steps to the next point. Remember to look at the horizon as you walk. On arriving at the next point, decide if you are still within the Key Area. If you are then rank, record and continue. If you feel you have left the Key Area you need to get back in it. This needs to be done with out any bias so think before you get going again. The following is a suggestion for getting going without bias. You are normally going to be able to continue the transect in the opposite direction. If you then toss a coin or look at your second hand or your watch. Decide ahead of time that if the coin is heads then turn right or if the second hand is between 0 and 30 you will turn right. Thereafter, when you decide you need to turn back continue in the direction you just determined. If you run out of space, continue the transect going at 90 degrees to the first direction. Find the first line in an unbiased way following some of the above suggestions (Fig 2).

#### Documenting the Key Area's location

1. ...Take two photographs of the Key Area including a photocard with the pasture and allotment identified. One is directly over the middle production clip plot before it gets clipped. The other photo is of the Key Area with the middle production clip plot in the foreground and some identifiable feature(s) in the background. These photos will be used to develop a photo index of pounds per acre, to help in locating the Key Area in the future, and to show trends by comparing this photo with photos taken at the same place in the future.

#### Clipping the reference plots

1. ...Clip the plots. Record the hoop letter, location, and date on the bag. Clip down to 1/4 inch above the ground carefully collecting all the vegetation within the hoop's air space (not the parts of the plants that overhang). Be careful not to accidentally add any soil, rocks or organic wastes into the sample.

### **Step 3 - determining estimates of pounds per acre**

1. ...Weigh the sample for the green weight and record. Be sure the scale is clean, zeroed and recently verified for accuracy.
2. ...Dry in the oven at between 60 and 65 degrees centigrade until the weight does not change more than 0.2 grams between weighings. This usually takes between 16 and 24 hours. Be careful not to put too many bags in the oven at one time. There needs to be even heat throughout the oven, otherwise the weight will not be accurate.
3. ...Weigh the dried sample immediately upon removing from the oven. Subtract the bag weight from the total to obtain the weight of the dried annuals (Are you using the correct bag weight?)
4. ... To obtain dry pounds per acre per sample multiply the number of grams by the hoop factor (make sure you use the correct one, not all are 100).

5. ... To determine the average pounds per acre of dry annuals for the Key Area enter the Lotus 123 file called grazplot.wk1.

- a).....fill the required spaces for observer, region, allotment, date, etc...
- b).....type in the three weights in pounds per acre (high, middle, low)
- c)..... type in all 25 ranks
- d)..... the answer is automatically computed
- e)..... print the results.

#### **Step 4 - reporting, documenting and filing information**

1. ... The printed results from the Lotus 123 grazplot.wk1 worksheet are filed with the developed photos in the appropriate allotment monitoring file.

### **Method for Measuring Utilization on Atriplex spp. in the Carrizo Plain Natural Area.**

This part of the grazing monitoring plan outlines the basic methods used to determine if utilization levels have met or exceeded those criteria outlined in the U.S. Fish and Wildlife Service consultation for grazing in the CPNA (the opinion). Under this method, a 50 point pace transect is run to collect the vegetation data. This method will provide information on percent utilization of the current or last producing year's leaders.

One of the basic assumptions is that grazing at the prescription set forth in the opinion will enhance all resources not just T&E species. The methods described in this section are not intended to answer this complex question. It is the objective of the methodology to assure that the prescription is being uniformly applied to public land. This is a crucial step in getting the first question answered.

A percent utilization determination is completed in three steps:

- 1. ... determining Key Area(s)
- 2. ... sampling vegetation at Key Area(s)
- 3. ... reporting, documenting, and filing information

**Materials Needed:** Instructions, field forms, map of pasture and key areas, pencil, compass, and a digital watch or one with a second hand.

#### **Step 1 - determining Key Area(s) and transect starting point/bearing.**

Specific criteria for establishing Key Areas has yet to be defined, however, Key Areas will be located in the "heavy use" areas of the pasture with consideration given to the distance to water sources and known livestock use patterns. The transects, of course, must also be located in areas which include key species populations. The intent is to find areas used intensively during the period of use.

These may occur in the same general location each year, but will probably fluctuate. Transects are located in heavy use areas since vegetation changes which occur as a result of browsing will be evident first on these areas. Once Key Area(s) are selected, the transect starting point and transect bearing are chosen to help maintain the intended line of travel through the transect. Although transects are not permanent, plot them on detailed maps for documentation and future reference.

To find an unbiased starting point follow these directions: (You need to have a digital watch or one with a second hand and a compass to do this).

1. ... Look at the watch and remember what the seconds are (e.g., 25)
2. ... Walk out toward the center of the Key Area.
3. ... Look at the seconds again (e.g., 15)
4. ... Use the first number for the direction to go to the starting point and the direction to go once you get started. Multiply the number of seconds times 6 to get the direction to go (e.g.,  $25 * 6 = 150$  degrees).
5. ... Use the second number for the number of steps to take to the first plant. Take 15 steps in the direction of 150 degrees. At this point you select the first plant to sample using the 180 degree selection zone. The second plant will be 5 steps farther in the same direction.

## **Step 2 - sampling vegetation at Key Area(s)**

From the transect starting point select and sample the nearest individual key species plant that occurs within a 180 degree zone. (See figure 2 for schematic of the 180 degree selection zone.) The plant selected could be an immature seedling or an established adult. Next, select a branch by the following method on the sample plant and estimate the amount of utilization of the current or last producing year's growth and magnitude of mechanical damage.

First, verify that the plant you selected to sample is one plant and not more by locating it's single base. To select a branch on the sample plant, begin with the first branch that you touch as you approach the plant. On the next sample plant, choose the top-most branch in the center of the plant. On the third sample plant, alternate back to the first-touched method, but vary your approach to that plant by 90 degrees. Alternate between the first-touched branch and the center branch at each new plant, changing your approach to the first-touched method plant by 90 degrees each time. (See fig. 2 for schematic to branch selection.)

To estimate the percent utilized on each plant, count down the first 10 leaders of current or recent growth and determine the number of these leaders which show any evidence of use. (See fig. 3 for diagram of key species leaders.) Annually caged plants may be available for comparison to determine current year's growth. Record the estimate on the field form. If you need more leaders than are on the selected branch, make a random decision to select another branch on the same plant. To randomly select another branch on the same plant, look at your watch and select a branch on the side of the plant in the direction the second hand would be pointing. (See fig. 4 for schematic of additional branch selection.)

Once the plant has been sampled, face in the bearing direction again and walk five more paces from the opposite side of the sampled plant and select the nearest plant which occurs within the 180 degree zone. Continue sampling in this manner until you have sampled 50 plants. If you travel out of the key area before you have sampled enough plants, you must change the bearing point by 90 degrees to continue the transect and avoid sampling the same branch twice. (See fig. 5 for new bearing point within the Key Area.)

Make an estimate of the percent of the population made up of seedlings and record on the field form. (A seedling is defined as a plant that has not yet reproduced, regardless of size.) Also keep a tally of the number of individuals and the percent of volume for each that was damaged from mechanical means. (Damage from mechanical means includes broken leaders and branches that are living or dead.) Make observations of the amount of use by rodents. (Rodent use can be identified by the sharp, clean and angled cut left on the stem or fraying and stripping of the bark at the base of the plant.)

## **Step 3 - reporting, documenting, and filing information**

The field forms and transect location map will be filed in the allotment monitoring file and a copy sent to the Carrizo Research Library.



Figure 1. Typical transect pattern in a Key Area

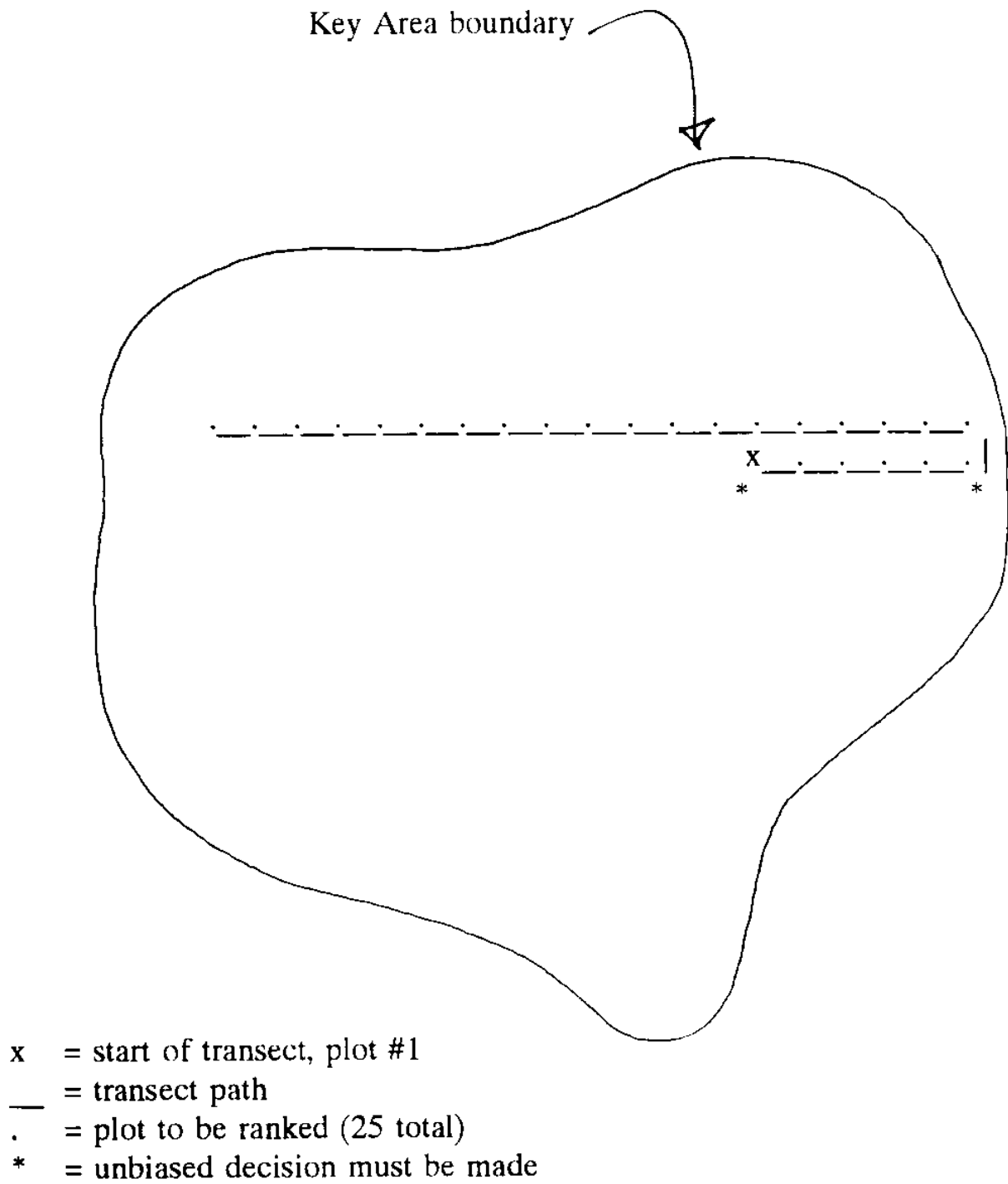


Figure 2. 180° Selection Zone and Branch Selection.

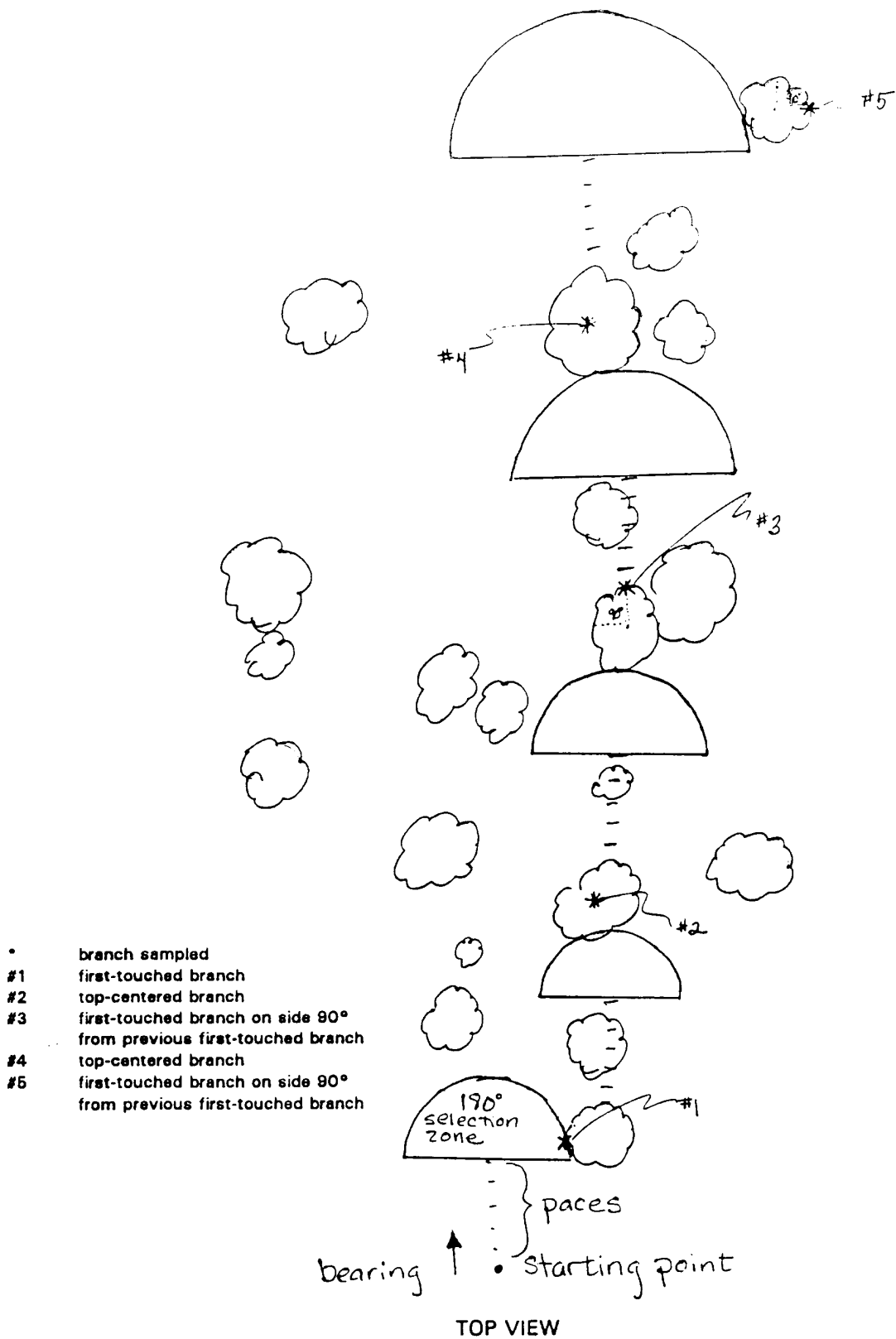


Figure 3. Leader Determination on Selected Branch.



Figure 4. Additional Branch Selection.

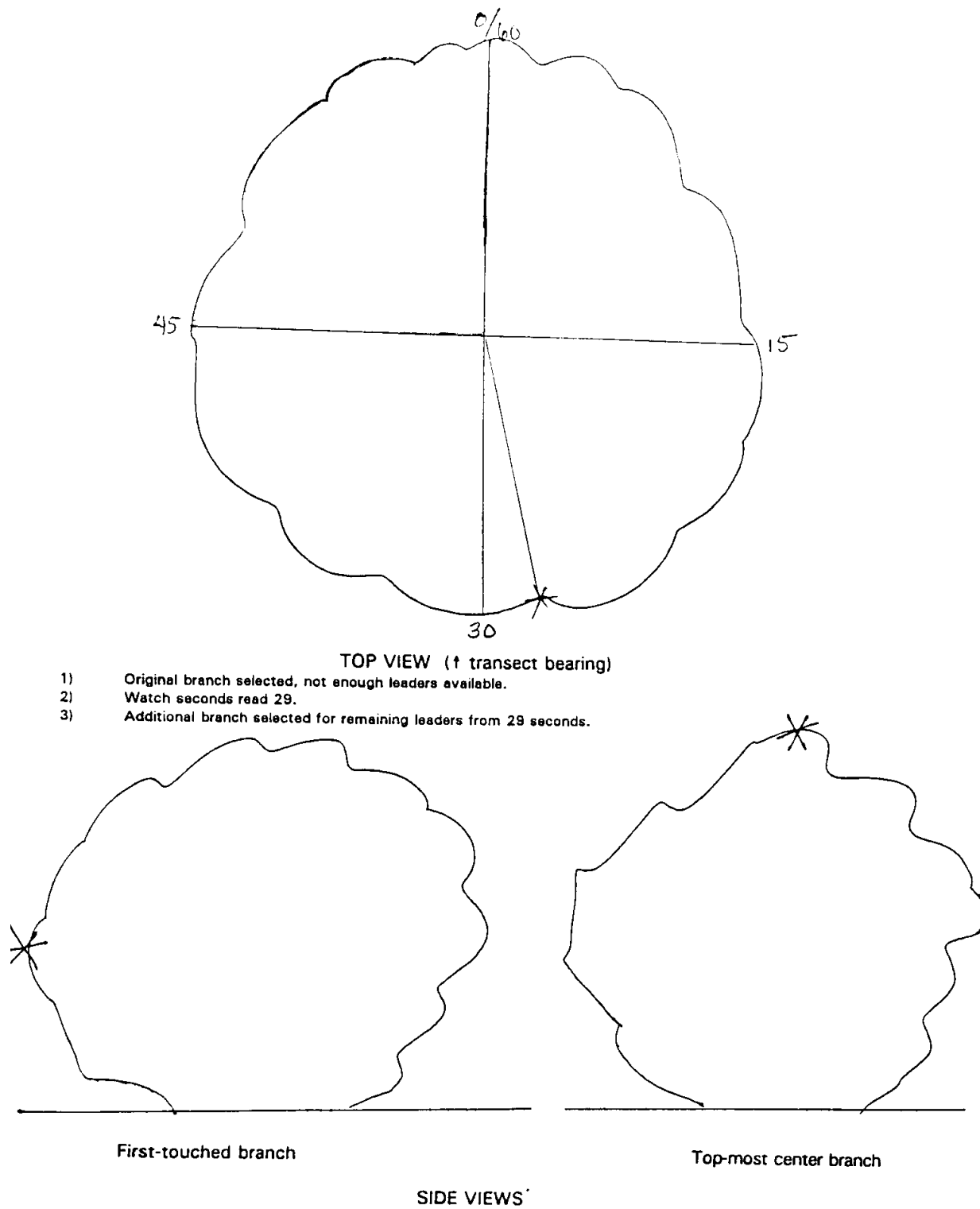
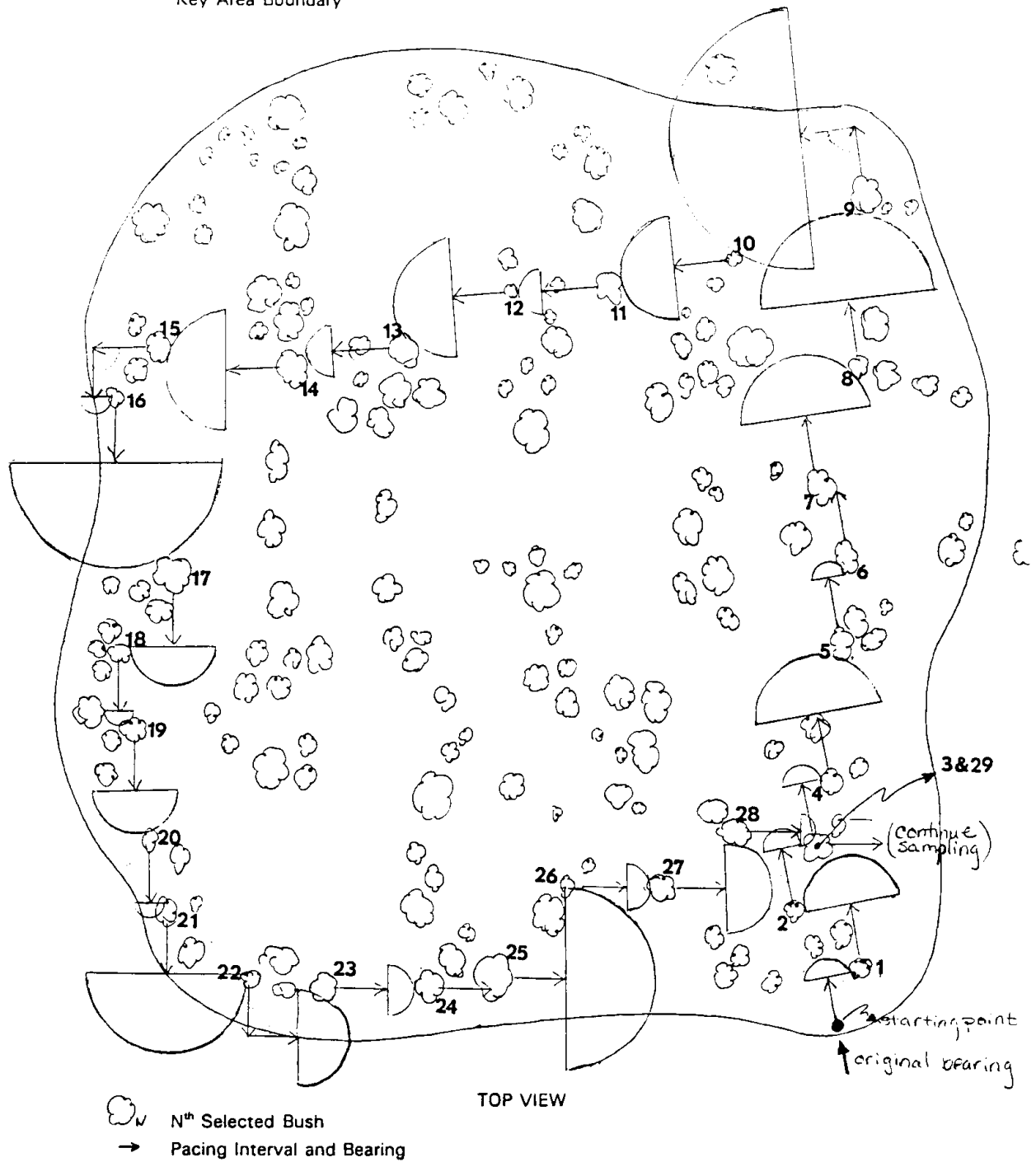


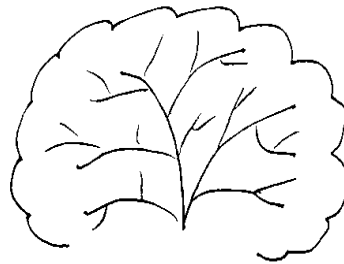
Figure 5. Changing Bearing Directions to Remain in Key Area.

Key Area Boundary

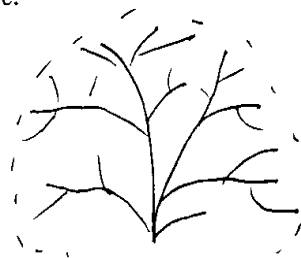


Saltbush (Atriplex polycarpa) Form Classes:

- A. Full rounded shape, dense leaves.



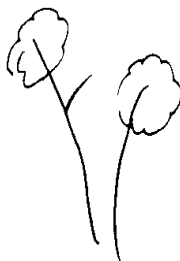
- B. Full branches. Rounded, but leaves sparse.



- C. Funnel shaped.



- D. Tufted sticks.



- E. Sticks.



- F. Trampled sticks.



## SALTBUSH UTILIZATION WORKSHEET

DATE MEASURED: \_\_\_\_\_ EXAMINER: \_\_\_\_\_  
 ALLOTMENT NAME, NUMBER: \_\_\_\_\_

PASTURE NAME: \_\_\_\_\_

TRANSECT LOCATION: TWNSP: \_\_\_\_\_ RANGE: \_\_\_\_\_ QTR.SECTION: \_\_\_\_\_

KEY AREA DESC.: \_\_\_\_\_

Species	.Percent Utilization											Total % Utilized	# of Plants	Avg. % Utilized
	0	10	20	30	40	50	60	70	80	90	100			

Were livestock present in the pasture?

Estimate the percent of utilization on the sampled population by rodents:

What percent of the individuals in the key area are seedlings?

Was the population in the key area isolated?, How?

Describe the form class of the majority of the population in the key area:

List other utilities perennial species encountered in the key area:

Number of totally dead plants encountered:

Mechanical damage tally: (list % of each plant observed with mechanical damage.)

Comments: